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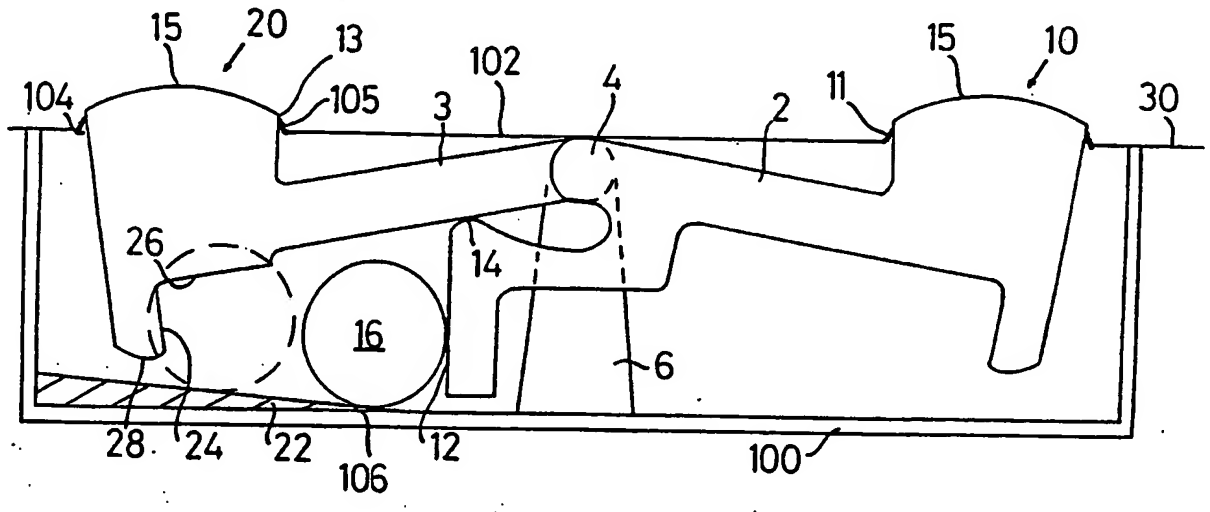

(57) Abstract

To impede traffic flow only above a certain threshold speed, there is provided a unit which includes a support surface (15) adapted to carry the weight of a vehicle wheel characterised by means to control the rate of displacement (16) of the support surface when engaged by the wheel. We also propose an assembly of such units, arranged side by side across a traffic lane.

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TRAFFIC SPEED CONTROL UNIT AND ASSEMBLY

FIELD OF THE INVENTION

This invention relates to a traffic speed control unit, and assembly.

STATEMENT OF THE PRIOR ART

A number of traffic speed control units, and assemblies, have been proposed, seeking to avoid the need to allocate staff, e.g. policemen, to traffic speed control duties.

One such known unit is a so-called "sleeping policeman" comprising one or more raised portions extending across, usually fully across, the "controlled" road; these raised portions are of sufficient height to cause noticable impacting of a car or other vehicle travelling at more than a minimum road speed e.g. 10 kmph. A number of such raised road portions are often used, spaced apart one from another along the road.

One disadvantage of the known arrangement of the traditional "sleeping policeman" is that it is constructed of conventional road-making materials; thus the road needs to be closed to traffic not only whilst the materials are being laid but also until those materials have properly "set".

Another disadvantage of the known arrangement of "sleeping policeman" is the difficulty of preparing it to a predetermined height and dimension in the traffic flow direction; the height will thus vary in accordance with the skill of the person laying the original road surface, and/or the skill of the person laying down the "sleeping policeman" upon an existing road surface. Drivers meeting a particular "sleeping policeman" for the first time have therefore to assume that it will provide a severe impact, so that those wishing to avoid such an impact need to slow down to a very low traverse speed, no matter what the actual height or extent(in the traffic flow direction) of the "policeman", and this traverse speed may be much lower than necessary, slowing the traffic more than is required. Conversely, because a "sleeping policeman" is so effective at slowing traffic almost to a standstill, it is not suitable for inhibiting traverse traffic speeds only below a "medium value" e.g. 50 kmph, so that "sleeping policemen" are not widely used, if at all, to help reduce to an acceptable value the speed of road traffic approaching a dangerous corner, or approaching other potential accident zones such as a hamlet straddling a major road.

DISCLOSURE OF THE INVENTION

We propose a speed control hump suitable for "traffic calming", encouraging a steady traffic flow within defined speed limits. At or below the design speed the drivers should cross the hump without damage to load or vehicle, or loss of control, and they should suffer no discomfort. Above the design speed the driver should suffer discomfort (but still without damage to load or vehicle or risk of loss of control); preferably the degree of discomfort will depend on the amount by which the driver exceeds the design speed up to a preset maximum beyond which the degree of discomfort may remain substantially constant.

In its broadest aspect, we now provide a traffic speed control unit which can be pre-assembled, and installed as a sub-assembly in a road cavity. We also propose an assembly comprising a number of such units, laid side by side across the road. Preferably the traffic speed control unit, and assembly, operate effectively whichever is the direction of traverse.

As a particular feature of our invention, we propose a traffic speed control unit, and assembly, operative to impede traffic flow only above a threshold vehicle speed thereacross. Preferably, the threshold speed can be varied by adjustment of the unit at the discretion of the speed control authority. Furthermore a driver entering a "low

speed" area can be alerted by grading the severity of a series of units or assemblies (providing "humps") in conjunction with roadside signs indicating the required traverse speed e.g. from 40kmph to 15kmph.

Thus according to one feature of our invention we provide a traffic speed control unit which includes a support surface adapted to receive the weight of a vehicle wheel characterised by means, to control the rate of displacement of the support surface when engaged by the wheel.

SHORT DESCRIPTION OF THE DRAWINGS

Fig.1 is a partial side elevation of one embodiment of a traffic speed control unit according to the invention;

Fig.2 is a plan view of an composite traffic speed control unit, comprising the units of Fig.1;

Fig.3 is a part side-sectional view of a second embodiment of traffic speed control unit according to the invention;

Fig.4 is a partial side elevation of a third embodiment of a traffic speed control unit;

Fig.5 is a view of an alternative control member for use in a fourth embodiment of traffic speed control unit;

Fig.6 is a partial side elevation of a fifth embodiment of a traffic speed control unit according to the invention; and

Fig.7 is a view of one means for the expulsion of water from a traffic speed control unit.

DESCRIPTION OF THE PREFERRED EMBODIMENTS

The traffic speed control unit of Fig. 1 includes a first "active policeman" member 10 and a second "active policeman" member 20, member 10 being mounted by arm 2, and member 20 being mounted by arm 3, on a common pivot 4 which is supported upon upstand 6. In alternative embodiments the single pivot 4 is replaced by separate co-axial pivots, one for each of the members; and the pivot(s) extends through an aperture in upstand 6, which upstand however then needs to be removed with the members 10,20 for refurbishment of a unit.

Member 10 has an integral control surface 12 engagable by a control roller 16, and an integral drive surface 14 engagable with the arm 3 of the second member 20; in this

embodiment the control roller 16 is in the form of a cylinder, whilst in another but less preferred alternative the roller is replaced by a ball. The control roller 16 in its position of use is under compression i.e. it is a compression member.

The members 10,20 are located in a housing 100, sealed in one embodiment by a unitary flexible cover (not shown) to prevent water and dirt ingress. In use the housing can quickly be laid in a pre-cut trench in a road, and secured.

In the embodiment shown, the housing 100 has a rigid e.g. metal, cover 102 with apertures 104 for the wheel support surfaces 15 of the members 10,20, only the apertures then needing to be sealed by the flexible material 11, the material having sufficient resilience to return to its original form (together with member 10 or 20) after passage of a vehicle. We prefer that the first and second active policemen 10,20 be in tight fit with a rubber bush or the like 11 e.g. a corrugated gaiter, at the opening 104 to the road surface 30, so as to prevent water and dirt ingress into the unit.

The housing 100 will preferably be of a non-corrosive material, but in an alternative but less preferred embodiment could be of thick section, intended to remain intact at least until the assembly is due to be replaced.

Each member 10,20 is adapted so that at any time one or both of the rounded (convex) wheel support surfaces, or "policemen", 15 project above the road surface 30. Preferably the wheel support surfaces 15, at rest, will project an equal distance above the road surface 30, as shown in Fig.1. In an alternative embodiment, the arms 2,3 are resiliently biassed towards this condition, as by a coil or leaf spring.

As above described, in the normal condition of use, as viewed in Fig. 1, each "policeman" surface 15 projects upwardly above the road 30, and so into the path of an approaching vehicle. Depression (i.e. downwards in Fig.1) of first member 10 by a vehicle approaching from the right rotates member 10 clockwise about pivot 4; integral drive surface 14 causes the second member 20 to rotate clockwise, also about pivot 4, allowing control surface 12 to impel control roller 16 up ramp 22, to strike rebound surface 24 on second member 20. The control roller 16 will thus now be in the position shown in dotted outline in Fig.1, directly beneath (in the Fig.1 orientation) a load transmitting surface 26 on second member 20.

The period for which control roller 16 remains beneath load transmitting surface 26 will depend upon the angle of the ramp 22, and the coefficient of restitution between the control roller 16 and the rebound surface 24 i.e. how quickly the roller rebounds from the surface 24.

This period, and the spacing (in the direction of vehicle travel) between the first and second members, together determine the threshold speed for the traffic speed control unit i.e. the speed at and above which the unit is operative.

If a vehicle, travelling from right to left, is travelling at below the threshold speed, then the control roller will have rebounded from rebound surface 24, and rolled down ramp 22, before the vehicle wheel loads member 20, so that roller 16 is no longer beneath load transmitting surface 26. The second member 20 can thus be depressed to or below the road level 30, until abutment 28 contacts the bottom 106 of housing 100, whereby the impact felt by the tyre will be minimal; in this embodiment ramp 22 is slotted or sectioned to allow movement therepast of abutment 28, but in a less preferred embodiment the abutment 28 can contact the ramp 22 which then acts as the downwards stop for second member 20.

If the vehicle is travelling at greater than the threshold speed set for the unit, then as the vehicle wheel engages the second member 20, the control roller 16 will still be beneath load transmitting surface 26, preventing the second member 20 being depressed, or depressed below the road level, and so surface 15, or more particularly corner 13, of the second member 20 is operative to provide an impact to the wheel, and thus to the vehicle. The magnitude of this

impact can be pre-set or pre-determined by the dimensions of the components within the unit, setting the height of corner 13 above road 30 at impact.

Surface 26 is usefully angled such that the greater the vehicle traverse speed above the threshold, the greter the inpact by surface 15 on the "trailing" arm 3. Alternatively stated, the greater the rebound distance of roller 16 (to the right as viewed in Fig.1) before it is engaged by surface 26, the lower will be surface 15. In this embodiment therefore, below the threshold speed no or negligible impact will be sustained by the vehicle wheel and felt by the driver, above the threshold speed the impact sustained and felt will increase with increasing vehicle speed until a second vehicle threshold speed is reached and above which a severe but substantially constant impact will be received (with the surface 15 held in its "uppermost" protruding condition).

The spacing between the wheel support surfaces 15 in the direction of travel of a vehicle would preferably be between 15 and 30cm. This would ensure that wheels on adjacent axles would each operate the traffic speed control unit independently. This spacing should also be greater than the length of the flattened ground-engaging area of the tyres of vehicles operating the unit, since if a single tyre can span the spacing, then a high impact would be felt independently of the speed of the vehicle.

The traffic speed control unit of Fig. 1 operates only in a single direction i.e. vehicles travelling from the right to the left of the figure.

In order to operate in two opposing directions, a composite unit is required. Whilst the simplest form of composite unit would require two wheel support surfaces each supported on a single arm 2, we prefer the composite unit as shown in Fig.2, with each wheel support surface supported by two arms 2. In the composite units, the arms 2 are of the same form as the arm 2 of Fig. 1, thus each arm has an integral control surface 12 and drive surface 14, the control surface 12 engaging a control roller 16. Each of the control rollers 16 rests upon a ramp 22 (not shown). Thus, for a vehicle travelling at greater then the threshold speed, whichever of the two members is first contacted by a vehicle wheel, then the other member will provide the impact to the wheel.

In an alternative embodiment, the composite unit of Fig.2 includes two elongated control rollers, each elongated roller spanning the full width (as viewed in the direction of vehicle travel) of the unit; in this embodiment the load transmitting surfaces would be supported upon the roller along their full length when impacting a vehicle travelling at greater than the threshold speed.

Although in one arrangement a single unit could be made of a size to span a road, we prefer that an assembly of smaller units (usefully of 30cm width) be placed side-by-side, together to extend fully across the road (a) to help prevent vehicles being driven around the unit(s) to avoid the intended traffic speed control, (b) to avoid each of two vehicles, perhaps travelling at different speeds, independently operating a unit in each case, and (c) permitting an assembly of the units to closely follow the camber of the roadway, whilst still permitting uninterrupted traffic flow below the threshold speed.

It is a feature of the invention that not all of the units of an assembly need be pre-set or pre-selected to operate at the same traverse speed threshold; thus units nearer a kerb which (temporarily) needs extra protection from fast-moving traffic (for instance if drainage pipes have recently been laid) can be set for a lower threshold than units spaced away from a kerb. However the impact felt should be graduated, so that the vehicle is not deflected from its traverse path by too great a possible difference between the impacts felt by the respective front vehicle wheels.

Alternatively units in one traffic lane can permit uninterrupted traffic flow at a faster traverse speed than in another traffic lane, for instance at car park exits or at traffic census points.

In the embodiment of Fig. 3, the active policeman comprises a first plate 110, and a second plate 120, the plates each being mounted at adjacent ends about a common pivot 104. The plate 120 at its other end is mounted upon a fixed pivot 150, whilst the plate 110 is slidably mounted upon surface 152.

The piston 154 slides in cylinder 150 and has transfer passages 158 thereacross controlled by washer valve 160, the valve having substantially unrestricted flow through the passageways during upward movement (as viewed in Fig.3) with extension of the piston rod or stem 153 out of the cylinder, but restricting fluid flow thereacross during downward piston movement (depression).

Hydraulic fluid displaced from the cylinder during downward movement of the piston is transferred by side porting 162 from below to above the piston, the hydraulic fluid above the piston being at atmospheric pressure.

The speed of fluid flow through side (external) porting 162 is used to limit the downward speed of the piston movement, and thus the downward "escape" velocity of pivot 104 when loaded by a vehicle wheel; in one embodiment this porting is of uniform area, whilst in another embodiment the porting includes a reduced or "necked" orifice area. In a preferred embodiment as shown in the drawing this porting is restricted as desired, as by adjustable control member 164.

Alternatively the porting controlling the downward piston speed can be provided across the piston, in parallel with the existing transfer passages 158.

In use, if the vehicle passes over the pivot 104 at below the threshold speed for the unit, then the liquid flow through the side porting is sufficiently fast to allow the piston, and thus the pivot, to move rapidly downwards, to provide substantially no impact to the vehicle wheel, and so no restriction to vehicle movement (from left to right or from right to left, as viewed in the drawing); at vehicle speeds above the threshold value set by the adjustable control member 164, the piston cannot move downwards sufficiently quickly so that the pivot remains as a "policeman" above the road 30.

In this embodiment, the plates 110,120 are returned to their normal position above road 30 by coil spring 166 acting between the cylinder 156 and the plates 110,120. Lip 170 of housing 200 is provided to ensure that under the action of spring 166, the plates rotate about pivot 104, and plate 110 remains in contact with surface 152.

It will be understood that this embodiment will allow limited speed depression of the piston 154 into the cylinder 156, whilst the passages 158 allow rapid extension, so that a closely following vehicle must also (fully) depress the

piston into the cylinder; thus a following vehicle cannot traverse without interruption faster than the preceding vehicle. Similarly the rear wheel(s) of a car or truck will also be impacted if the traverse speed is still above the set or selected threshold.

An advantage of this embodiment is that the speed control unit is readily visible (as for the known "sleeping policeman") but without the disadvantages of the known unit. A particular application is to help control the speed of commercial vehicles, particularly edible food carrier vehicles, into and through a driver controlled washing and cleaning station (scrubbing the container interior surfaces).

In an alternative, but less preferred, embodiment, the side porting 162 and washer valve 160 are removed or are not used, and the fluid flow rate, both upon depression and extension of the piston, is controlled by the size, and number, of transfer passages 158. In this latter embodiment, the piston will extend, to raise pivot 104 above the road surface 30, slowly, though this may be acceptable to some road speed control authorities.

In other alternative embodiments, the traffic speed control units need not have a variable speed threshold; the authority may designate the speed threshold required, and the manufacturer may install a disc or washer with a

suitably sized orifice into the side porting, or may fit suitably sized side porting, to give the required (one-way) fluid flow rate, and thus the required speed threshold.

Thus a commonised unit or assembly can be offered to different customers, differing only in the disc fitted; or an installed assembly can have its threshold altered if traffic conditions change, even perhaps during the day as between normal and peak traffic flows.

As with the embodiment of Figs.1 and 2, we prefer that the unit is water and dirt proof, rather than have drainage means and regular pivot cleaning and greasing, and in this embodiment, the plates 110,120 may be surrounded by a rubber compound e.g. "Metalastic" (R.T.M) pivots at both the junction between the arms, and at the junctions of the arms with the outer casing 200.

Whilst in this embodiment the pivot is fitted through the piston stem, in an alternative embodiment, with spring 166 located within cylinder 156, i.e. below (in the Fig.3 orientation) piston 154, the pivot rests against the stem of the piston, so that the plates 110,120 can be replaced without need to replace the piston.

In the embodiment of Fig.4, the "policeman" surface 415a, 415b is of shorter length in the vehicle traverse direction (right to left as viewed) than for the Fig.1 embodiment. One advantage of this is that it may result in smaller angular and vertical displacements of the vehicle suspension (with less liklihood of vehicle damage) whilst retaining a sufficient impulse to cause driver discomfort at traverse speeds above the design threshold. In this embodiment, surfaces 415a,415b are provided by plates secured respectively to arms 402,403, which move together about pivot 404.

Secured to arm 404 is a kicking lever 411 having a control surface 412 engageable with the control member 416. The control member 416 is movable about pivot 420, such that its upper surface 422 can move into alignment with the load transmitting surface 426 of plate 415b. Control member 416 carries a counterweight 424 so that it is gravity biassed to the position shown i.e with the surface 422 out of alignment with the surface 426.

In use, a vehicle approaching from the right will first press wheel support surface 415a, causing arm 402 to move clockwise about pivot 404; drive surface 414 (which in this embodiment is a surface of a pin projecting from arm 402), engages the undersurface of arm 403, urging the plate

415b upwardly (clockwise), to project a greater distance above the road surface 30.

As arm 402 moves, it also carries with it kicking lever 411 with a control surface 412 which impacts control member 416 causing it to move (anti-clockwise as viewed) about pivot 420 whereby the upper surface 422 of member 416 moves to a position below load transmitting surface 426; in a preferred embodiment the movement of the control member 416 is arrested by an abutment 418, from which it can rebound back towards the rest position shown, assisted by the offset gravitational force from counterweight 424, unless held and trapped by the depression of vehicle support member 415b with surfaces 426,422 in engagement.

It is an important feature of this embodiment also that the control member (416) can move in response to but detached from control surface 412 of kicking member 411.

If the vehicle is moving at below the threshold speed, then counterweight 424 causes reverse pivotting (in the clockwise direction) of the abutment member 416, so that this is moved out of the path of surface 426 before this has been fully depressed by the vehicle wheel. However, if the vehicle is travelling at above the threshold speed, then the load transmitting surface 426 engages the upper surface 422 of member 416, whereby the wheel support surface 415b

is held above road 30 and in a wheel-impacting and tyre-deflecting condition, with resulting driver discomfort.

There may be more than one arm 402,403 across the unit (as in the composite unit of Fig.2), or a single arm may support the full width of the wheel support surface 415,415b. The control member 416 may span the whole width of the unit, or only part of the width, as required.

In the alternative embodiment of Fig.5, the control member 516 has a part-circular lower surface 517 adapted to pivot in part-spherical recess 518 provided in the housing or channel base. The control member 516 is acted on by a kicking lever (not shown) as described in relation to Fig.4. In the Fig.5 embodiment the weight of a vehicle on wheel support 515b is taken from the load transmitting surface 526 to the upper surface 519 of the control member 516, and thence to the housing or channel base.

In the embodiment shown in Fig.5, surface 519 is of greater radius at its right hand end (as viewed) than at its left hand end, whereby to provide a vehicle wheel impact proportional to the vehicle speed above the threshold. Thus, the smaller the vehicle speed increment above the design threshold, the greater will be the permitted return movement of the control member 516 before trapped by surface 526 (when the vehicle engages the wheel support surface 515b), and consequently the further may

wheel support surface 515b be downwardly deflected towards the road surface 30, with less driver discomfort therefore than with a higher increment.

In an alternative but less preferred embodiment, return movement of the members 416,516 is spring assisted, in addition to the offset gravitational force.

In the embodiment of Fig.6, the arms 602,603 are independently mounted upon respective pivots 604a,604b. Each arm has a drive surface in the form of a lifting pad 614; the pads are closely spaced, so that rotation of one arm causes corresponding rotation of the other arm. Each arm 602,603 also has a control surface 612 engageable with the respective control member 616. The control members 616 are each movable about pivots 620.

In use, clockwise pivotting as viewed of arm 602 causes contact between the lifting pads 614, causing corresponding clockwise rotation of arm 603. An advantage of this arrangement is that the ratio of the movements of arms 602,603 need not be unity.

The lever 612 of arm 603 contacts an arm 617 of control member 616, "kicking" the control member to the position shown in dotted outline, with a portion 630 of the control member between the load transmitting surface 626 and the anvil 642, in place to prevent downwards movement of wheel

support surface 615b. In an alternative embodiment, the control member 616 and anvil 642 combination can be replaced by the pivotted member 516 and part-circular bearing of Fig.5.

It will be understood that by altering the relative positions of the pivots 604a,604b and of the lifting pads 614, the degree of movement of the second arm 603 relative to the degree of movement of the first arm 602 can be varied, i.e. the unit can be "geared" to provide a larger rotation of the arm 603 than 602, or vice versa, so that the unit can provide a different recorded impact to vehicles travelling at the same above-threshold speed but traversing the unit from different directions.

It will also be understood that whilst the unit of Fig. 4 as shown is operative in only a single vehicle traverse direction, a corresponding kicking lever and abutment could operate upon wheel support surface 415a so that the unit becomes bi-directional. Similarly, the unit of Fig.6 could be adapted to be uni-directional only.

Fig.7 shows an embodiment of automatic pump to expel water which inadvertently may enter the unit. Attached to one of the arms e.g. arm 402, there is an arm 700 connected to the centre of flexible diaphragm 702. In use, movement of arm 700 will act to move the centre of the diaphragm respectively to the left or right as viewed.

If therefore, despite all the above mentioned precautions, water enters the housing, it will enter the pump through pipe 704, past non-return valve 706 into chamber 710. Movement of the centre of diaphragm 702 to the right as viewed compresses the fluid in the chamber, expelling water through the pipe 712, past non-return valve 714, back to the road surface or drain as required. Movement of the centre of diaphragm 702 to the left caused further water (if any) to be drawn into the chamber. Thus in use, water can be steadily ejected in a series of pulses i.e. upon each occasion arm 402 is engaged by a vehicle wheel. In an alternative embodiment, the pump is provided by a hollow elastomeric body, the entrance to which can first be closed in consequence of movement of arm 402, with further movement of arm 402 resulting in compression of the body and the expulsion of entrained water or other liquids.

It may be desirable, where the minimum of traffic disruption is required, that the traffic speed control units as described in the drawings be located within an outer housing which is itself placed within a trench dug across the road; complete units can then be selectively removed from the trench and replaced, for maintenance.

Typically, the front face of the wheel support surfaces, as seen by approaching vehicles, carries a reflective strip or equivalent, so that the vehicle drivers are made aware of

the presence of the units, particularly in dark conditions when roadside warnings may not be seen.

Thus, we have disclosed a unit and assembly which can be left in position in a road for "traffic calming" i.e. to provide substantially uninterrupted flow to vehicles travelling below the threshold speed but which is effective as a "policeman" at speeds above this threshold level. The threshold can be varied to suit particular applications e.g it can be higher when used to help restrict the speed of vehicles entering villages and hamlets, and lower when used to control the exit from car parks and the like. We thus foresee a widespread use for our invention to help control the speed of vehicles at locations where this is not now practical without human supervision, including outside school gates and on blind corners.

Not only have we disclosed a traffic speed control unit which includes a support surface 15 adapted to receive the weight of a vehicle wheel together with means to control the rate of displacement of the support surface when engaged by the wheel, but also we have disclosed a traffic speed control assembly wherein a plurality of such units are laid side by side across a traffic lane (usefully in a common trench), with the support surface above the traffic lane to be impacted by an oncoming vehicle wheel, but adapted to displace to avoid impeding the wheel with driver

discomfort if the traverse speed is below a pre-set threshold.

CLAIMS

1. A traffic speed control unit (10) which includes a support surface (15,415b,515b,615b) adapted to receive the weight of a vehicle wheel characterised by means (16,26, 426,526; 154,160,162; 416,426; 516,526; 616,626),to control the rate of displacement of the support surface when engaged by the wheel.

2. A traffic speed control unit which includes a housing (100), a cover (102) for the housing and which includes a support surface (15,415b,515b,615b) for a vehicle wheel, characterised by means (4,153,404, 517,604b) permitting movement of the support surface between a wheel abutment position proud of the housing and a non-abutment position, and by means (16,26, 426,526; 154,160,162; 416,426; 516,526; 616,626), to control the rate of displacement of the support surface when engaged by the wheel from said abutment position towards said non-abutment position.

3. A traffic speed control unit as claimed in claim 1 or claim 2 characterised by a two-part mechanical means (16,26; 415b,416; 515b,516; 616,626) to control the rate of displacement of the support surface when engaged by the wheel, said means having a first zero rate of displacement when the parts of said two-part means are fully engaged and a second greater rate of displacement.

4. A traffic speed control unit as claimed in claim 1 characterised in that the support surface is coupled to a pivotted arm (3), the pivotted arm having a load transmitting surface (26) engagable by rollable member (16).

5. A traffic speed control unit as claimed in claim 1 characterised by a pair of pivotted arms (2,3; 402,403; 602,603), one of the arms (3,403,603) being connected to a load transmitting surface (26,426,626) engagable by a compression member, by said one of the arms (2,402,602) having a drive surface (14,414,614) engagable with the other of the arms (3,403,603) to pivot said other of the arms, by said one of the arms (3,403,603) having a control surface (12,412,612) engagable with the compression member when said compression member is not engaged by the load transmitting surface, and by said compression member being one of a rollable member (16) and a pivotable member (416,516, 616).

6. A traffic speed control unit as claimed in claim 5 when dependent upon claim 2, in which the housing has a cover, and in which the rollable member (16) is mounted to roll upon an inclined surface (22), the rollable member being closer to the said cover when

engaged with the load transmitting surface (26) than with the control surface (12).

7. A traffic speed control unit as claimed in any previous claim characterised by a pair of support surfaces (15,415b,515b,615b) each with a means to control the rate of displacement of its respective support surface when engaged by a wheel whereby the unit can operate for opposite directions of wheel traverse of the unit.

8. A traffic speed control unit as claimed in claim 1 or claim 2 characterised in that the support surface is connected to a pair of arms (110,120) pivotted together and held at an obtuse angle by a piston rod (153) of a piston (154), and in which the means to control the rate of displacement of the support surface is valving (160,164) controlling the rate of hydraulic flow across the piston.

9. A traffic speed control unit as claimed in claim 8 characterised by substantially unrestricted flow of hydraulic fluid across the piston (154) during extension movement of the piston rod out of the cylinder (156), and porting (162) connecting opposite ends of the cylinder, and adjustable control member (164) in the porting (162).

10. A traffic speed control assembly characterised by a plurality of traffic speed control units according to any of claims 1-9, arranged side by side across a traffic lane, with the support surface normally above the traffic lane.

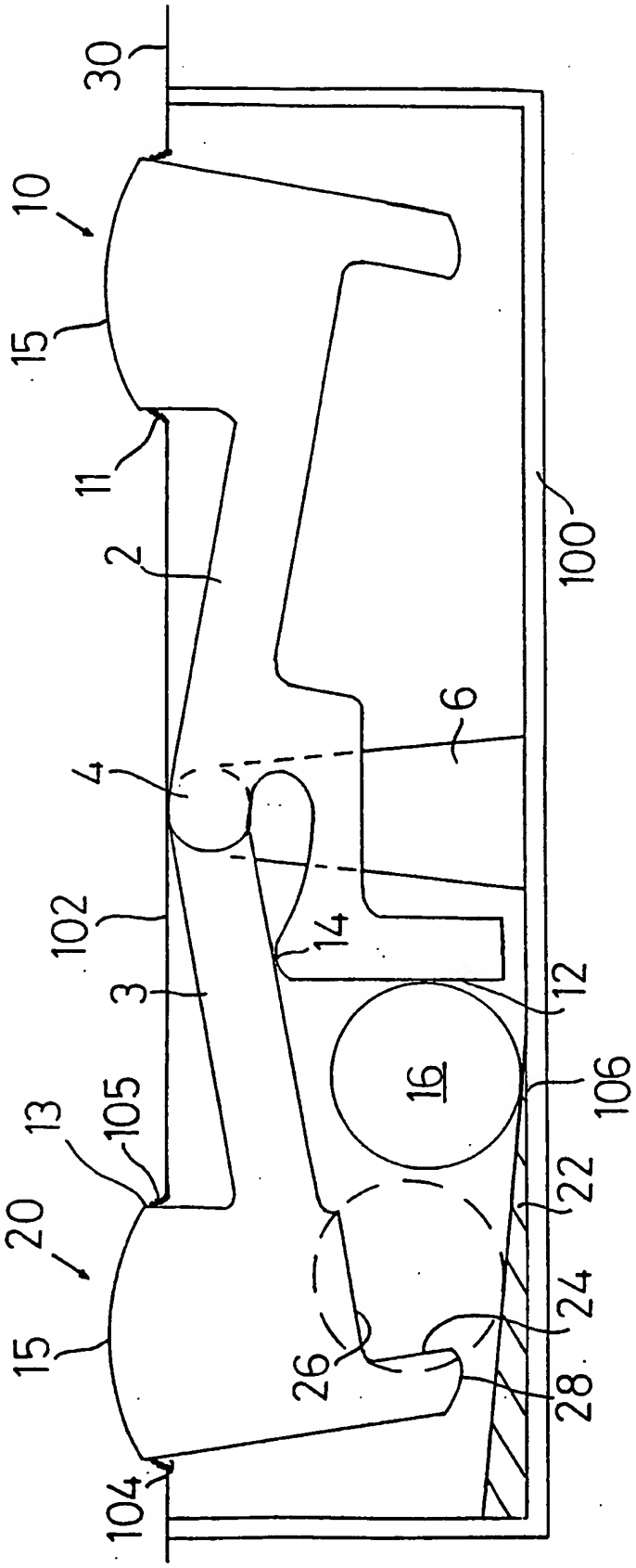

FIG 1

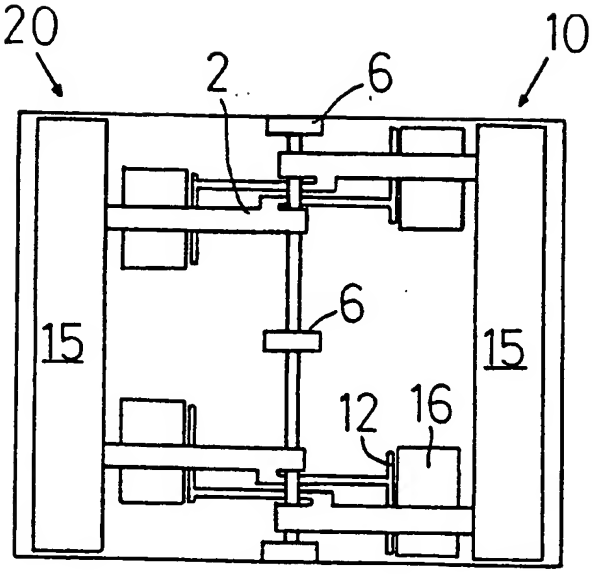
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FIG 2

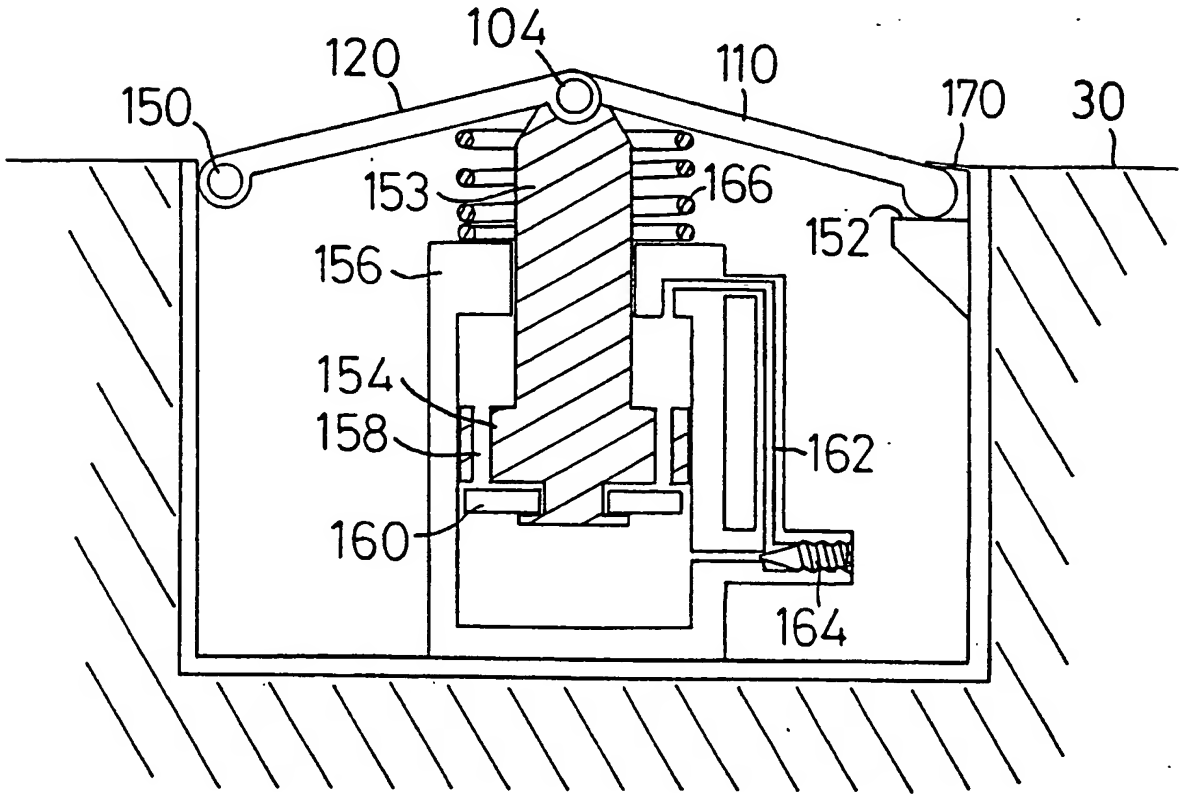
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FIG 3

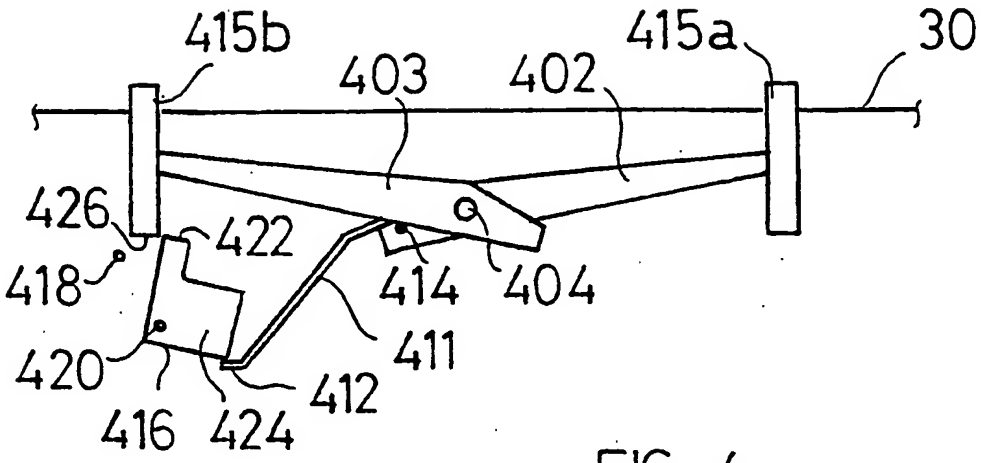


FIG 4

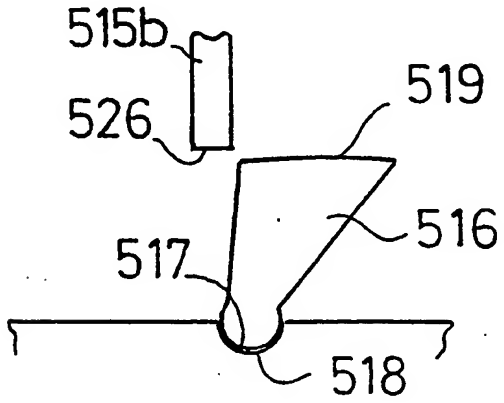
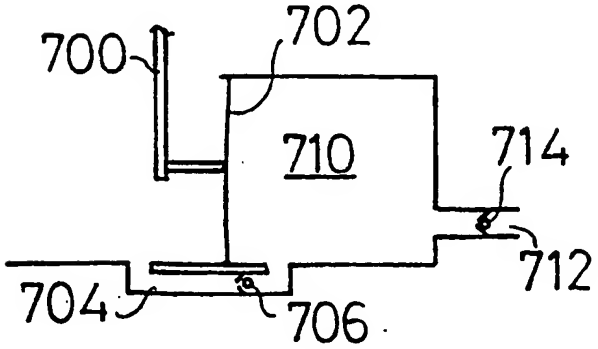


FIG 5

FIG 7



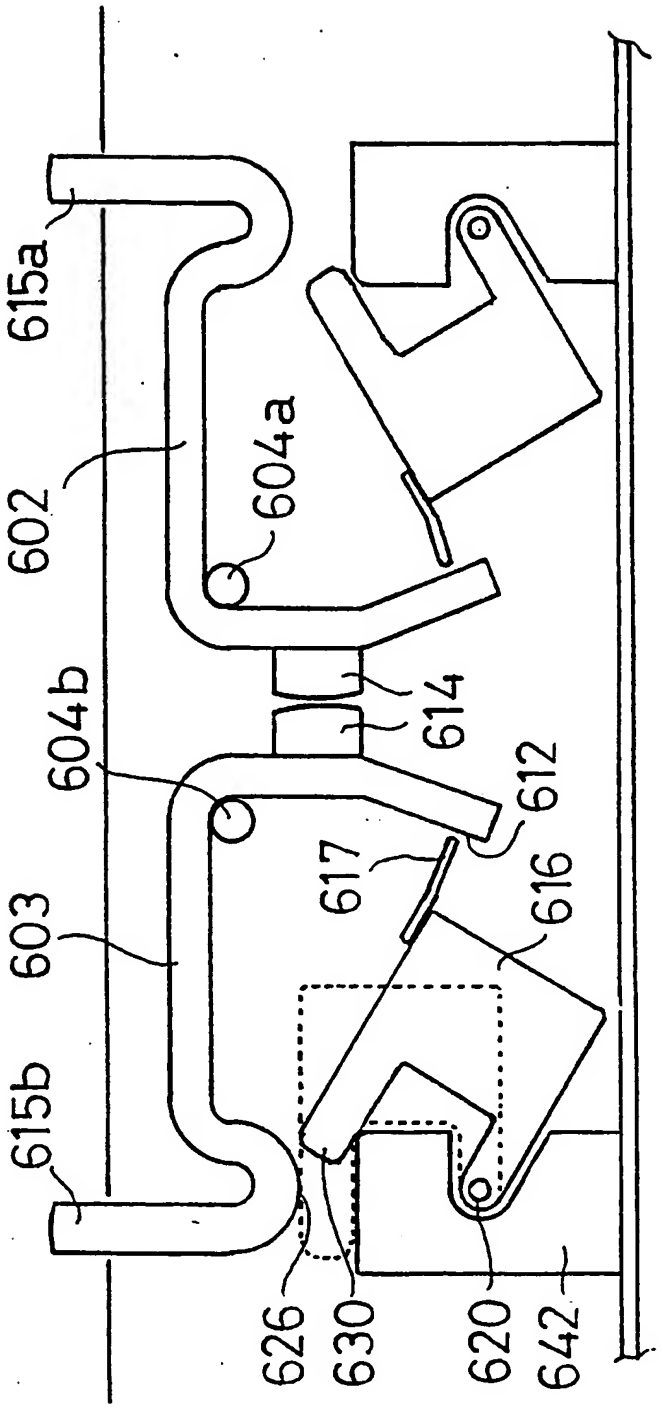


FIG 6

INTERNATIONAL SEARCH REPORT

International Application No PCT/GB 93/01113

I. CLASSIFICATION OF SUBJECT MATTER (if several classification symbols apply, indicate all)[6]

According to International Patent Classification (IPC) or to both National Classification and IPC

Int.Cl. 5 E01F9/04

II. FIELDS SEARCHED

Minimum Documentation Searched[7]

Classification System	Classification Symbols
Int.Cl. 5	E01F

Documentation Searched other than Minimum Documentation to the Extent that such Documents are Included in the Fields Searched[8]

III. DOCUMENTS CONSIDERED TO BE RELEVANT[9]

Category °	Citation of Document, [11] with indication, where appropriate, of the relevant passages [12]	Relevant to Claim No.[13]
X	DE,A,2 914 708 (A. KLÄSENER) 23 October 1980	1,2,7
Y	see page 5, paragraph 2 see page 7, paragraph 4 - page 8, paragraph 4; figure	10

X	GB,A,2 079 356 (C.H. WILSON) 20 January 1982	1,2
A	see page 2, line 20 - page 3, line 105; figures 2-8	3,8

X	US,A,3 389 677 (L.J. DUNNE) 25 June 1968	1
Y	see column 3, line 40 - column 4, line 3; figures	10
A		7,9

	-/--	

° Special categories of cited documents : [10]

"A" document defining the general state of the art which is not considered to be of particular relevance

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"L" document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified)

"O" document referring to an oral disclosure, use, exhibition or other means

"P" document published prior to the international filing date but later than the priority date claimed

"T" later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention

"X" document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step

"Y" document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art.

"&" document member of the same patent family

IV. CERTIFICATION

Date of the Actual Completion of the International Search	Date of Mailing of this International Search Report
19 AUGUST 1993	02 -09- 1993
International Searching Authority	**Signature of Authorized Officer**
EUROPEAN PATENT OFFICE	VERVEER D.

III. DOCUMENTS CONSIDERED TO BE RELEVANT (CONTINUED FROM THE SECOND SHEET)

Category °	Citation of Document, with indication, where appropriate, of the relevant passages	Relevant to Claim No.
A	US,A,2 729 805 (D.R. STRUKE) 3 January 1956 see column 2, line 46 - line 56; figure 2	1,2
A	FR,A,2 647 132 (J. CHARBONNIER) 23 November 1990	

ANNEX TO THE INTERNATIONAL SEARCH REPORT ON INTERNATIONAL PATENT APPLICATION NO.

GB 9301113
SA 74613

This annex lists the patent family members relating to the patent documents cited in the above-mentioned international search report.
The members are as contained in the European Patent Office EDP file on
The European Patent Office is in no way liable for these particulars which are merely given for the purpose of information. 19/08/93

Patent document cited in search report	Publication date	Patent family member(s)	Publication date
DE-A-2914708	23-10-80	None	
GB-A-2079356	20-01-82	None	
US-A-3389677		None	
US-A-2729805		None	
FR-A-2647132	23-11-90	None	